

QGIS

Mapping network

Mapping pipeline with QGIS

I. Use of GPS

1. Turn on the GPS
2. Go to **Satellite** (go up using the front cursor), wait until the text “Acquiring satellite” is replaced by the latitude and longitude position.
3. Go back
4. Go down to **Mark Waypoint**
5. An automatic number appears at the top, take this number on your notebook in front of the name of the structure you are checking.
6. Click on **Done**

The waypoint is saved in the device, we will see later how to download it on the computer.

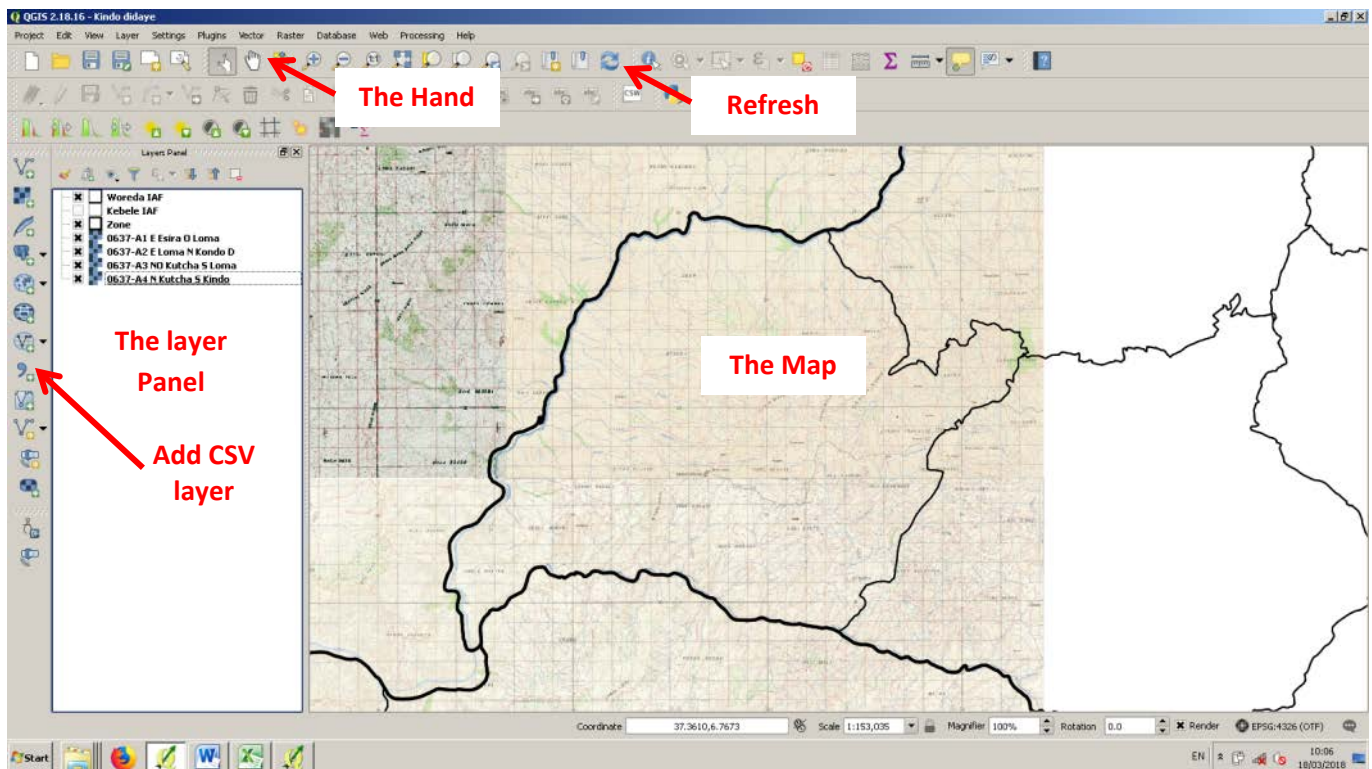
II. Quick overview of QGIS

1. Install QGIS by double clicking on the install files :
QGIS-OSGeo4W-2.18.16-1-Setup-x86_64.exe
2. Open QGIS project. Example : **Kindo Didaye.qgs**

A **QGIS project** is like an index that store the path to all the map and points, the actual map and points are each stored in a separate file. To copy all the project to another computer all the QGIS folder must be copied.

1. The map

Your screen should look like the following picture



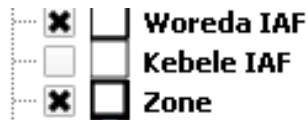
To **navigate** on the map, select the hand  , click on the map and move the mouse.

To **zoom in** and out use the mouse wheel.

2. The layer Panel:

This panel lists all the layers that are shown on the map. On the Map, the top layers appear on top of the bottom ones. Here we have:

- 3 borders layers (In QGIS it is called **polygon** under the **vector layer** category)



The Woredas and Kebele borders and name appear when the map is zoomed in.

- 4 topographic maps (these are images that are called **raster layers** in QGIS)

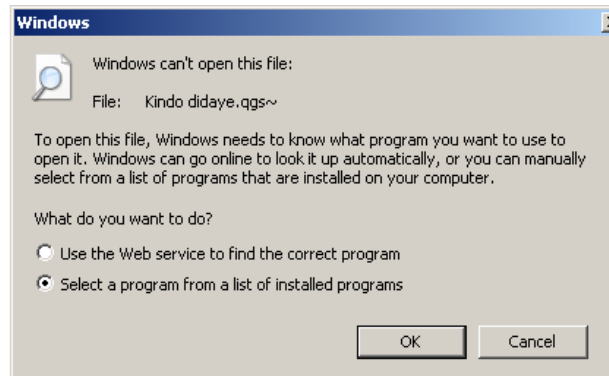


III. Showing GPS point on the map

1. Plug the GPS on the computer
2. Go to: Computer →Garmin eTrex →Garmin →GPX→Waypoint_ date.gpx
3. Copy the file in your computer (the best is to copy it under QGIS folder)
4. Rename it to a more meaning full name
5. Open it

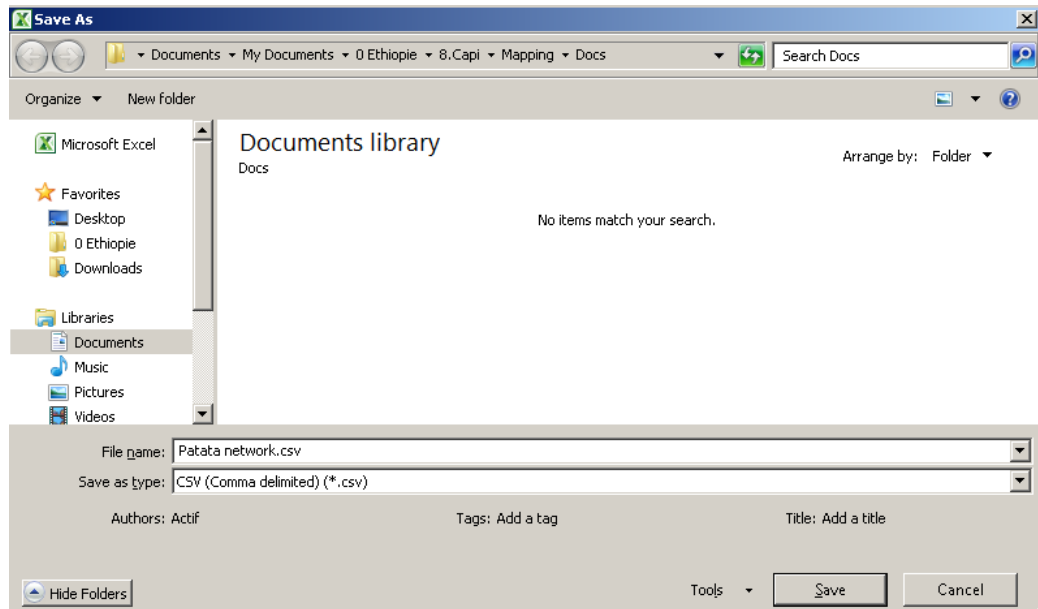
To Open it the first time follow this procedure:

- a. Open →select a program from a list of installed programs →OK



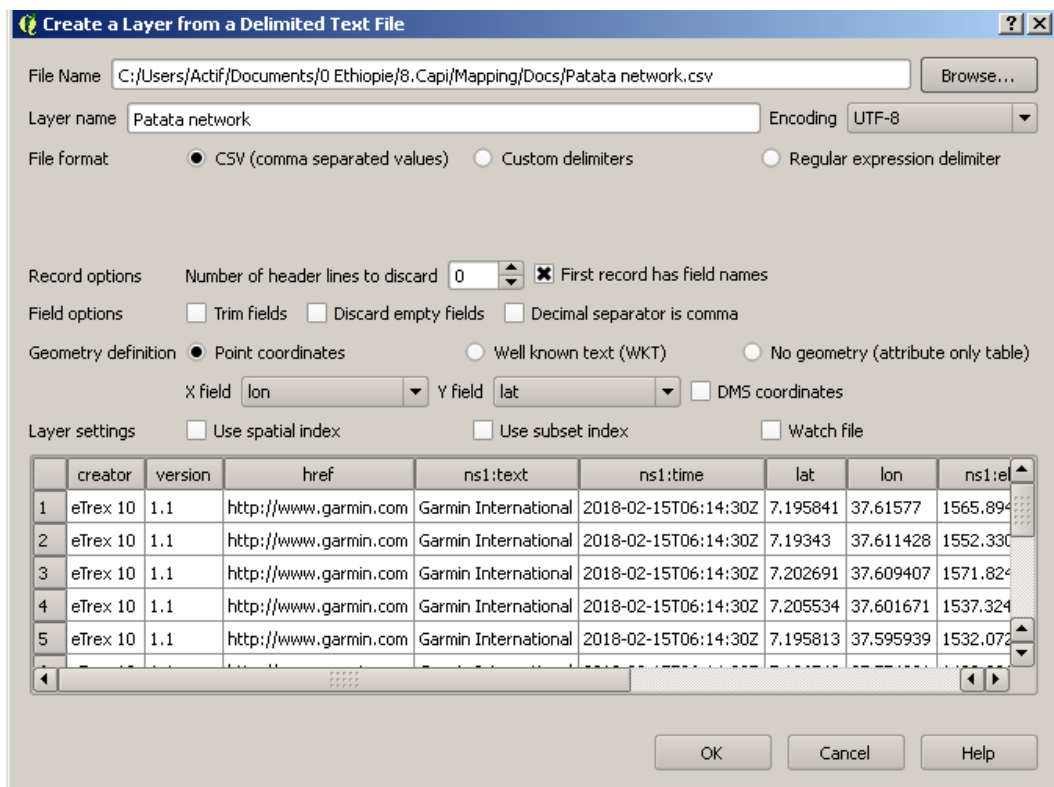
→Choose **Microsoft Excel** → **OK**

- b. Or Right click on the file →Open With →Choose default program →OK
6. Click Yes or OK to the first 3 or 4 questions excel asks before opening the file
 7. You can now arrange the file to suit your need:
 - a. You can delete unnecessary column but you must keep: **lat** (latitude), **lon** (longitude), **ns1:ele** (elevation) and **ns1:name** (the name of the point in the GPS)
 - b. You can add some columns, such as Name of structure, type of structure, nb of household
 8. Save the file as csv: File →Save as
 - a. In **Save as type**: choose **CSV (Comma Delimited)(*.csv)**
 - b. In **File name**: choose a meaning full name such as Patata network



Click on **Save** then on Yes and OK to the two next questions Excel asks

9. In QGIS open the file: click on **Add Delimited Text Layer** 

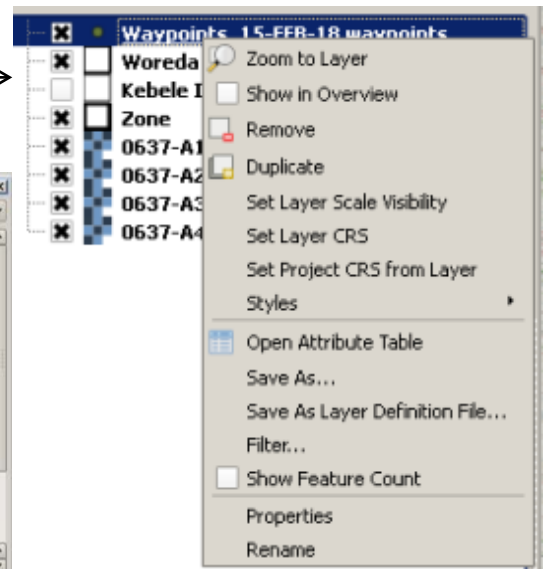
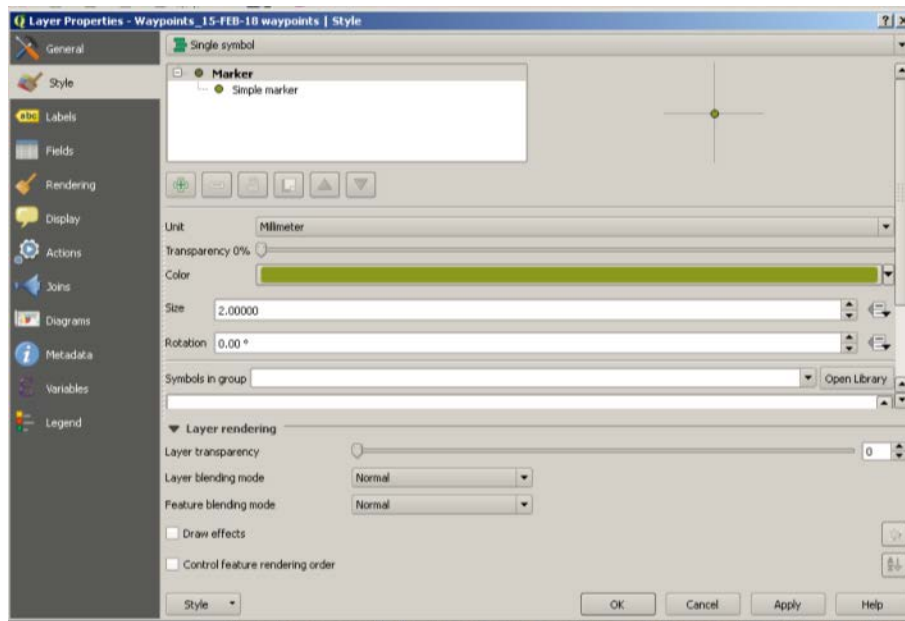


Choose your file by clicking on **Browse** then click on **Ok**

A new layer should appear in the layer panel :

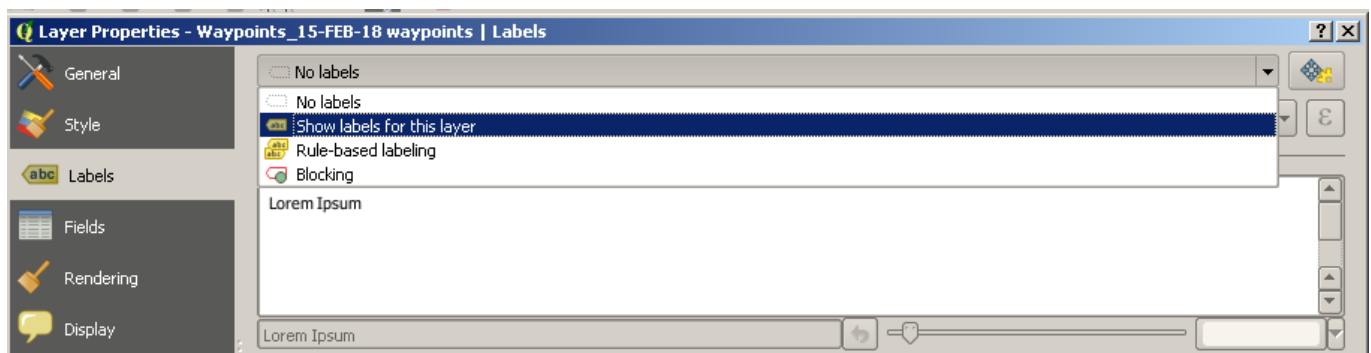
Right click on it → click on Properties

Click on **Style**



You can choose the **point color**.

Click on **Labels** → on the top drop down list select: **Show labels for this layer**



Click on **Label with:** → Choose the column that contains the structure name.


In **Text** choose **Style** → **Bold**; **Color** → the same as the point color.

In **Buffer** click on **Draw text buffer**

In **Placement** on **Distance** write 1

Modifying the CSV file

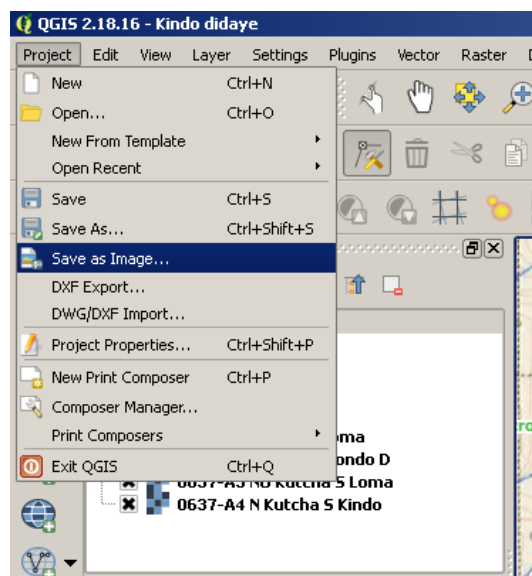
You can open the CSV file with excel to modify it. The first time you want to open it you must follow the same procedure as for the GPS file.

You can update data (for example the number of latrines), you can add lines (for example by copying data from another GPS file). To show the change in QGIS, just click on **Refresh** .

Careful: if you change the columns (add or remove columns, change their name), the point will not show anymore in QGIS and you will have to restart to **step 9**.

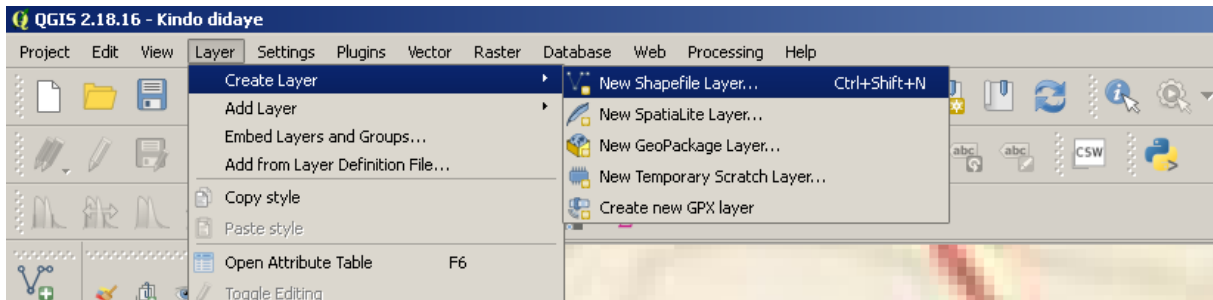
IV. Easy Printing

1. **In QGIS** : Click on Project → Save as Image
2. Give a name to the image and save it: you will be able to open it as a picture.

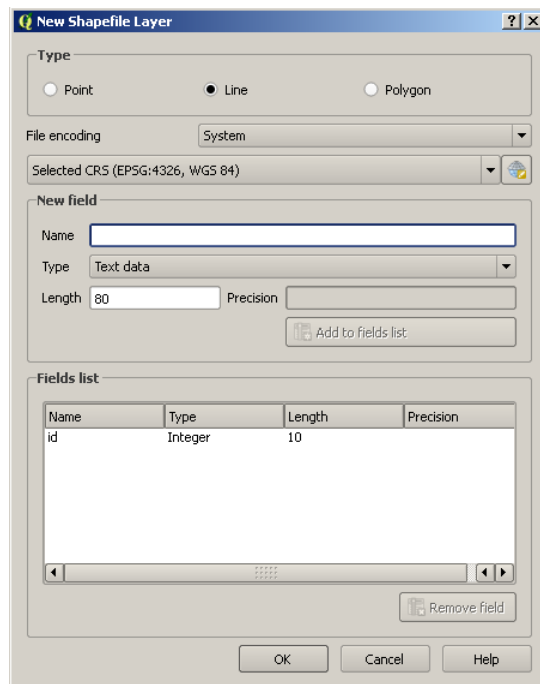


V. Drawing the pipeline

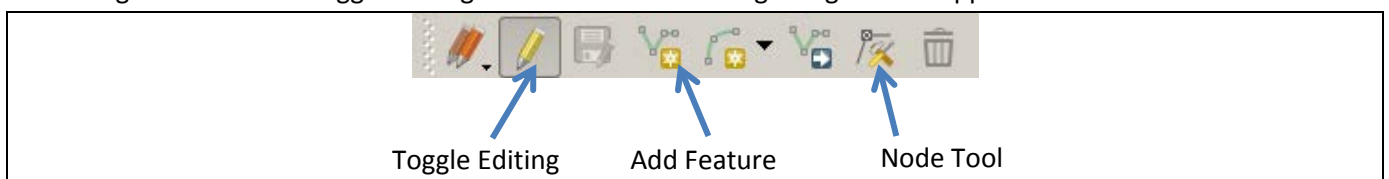
1. Click on Layer → Create Layer → New Shapefile Layer






2. Select Line →OK



3. In the save layer as dialog box, give a name to your layer, for example Patata pipeline →Save
4. The new layer appears in the layer panel
5. Right click on it →Toggle Editing. The functions in the digitizing toolbar appear:



6. Click on Add Feature 
7. Click on the start of the pipeline and then click on the end of the pipeline. Then right click.
8. A dialog box will appear click OK, the first line is drawn
9. Restart to step 6 to add new line
10. To move an existing line click on Node Tool , click on a line endpoint and drag it to its new place.

11. Once the pipeline is drawn click on Toggle Editing  and click on Save.
12. You can then right click on the pipeline layer in the layer panel and in Properties→ Style choose your line color and width (thickness).